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I. De Maximis & Minimis quæ in motibus Corporum Cælestium occurrunt.

**A**NTE *Keplerum* Astronomi universi, per tot retro secula, Planetarum motum circula-rem non ausi sunt in dubium vocare, ex præconcep-*tâ*, ut videtur, in figura Circuli nescio qua perfectionis *Ideâ*. *Keplero* autem Inventori debetur ea qua nunc utimur Theoria, nempe quod Corpora cælestia Solem ambiunt in communi orbium Ellipticorum Foco situm, ea lege ut *Areæ* Temporibus proportionales radiis ad Solem ductis describantur. Sublimiorem vero postulat Geometriam, ad ostendendum quam ob causam hoc ita se habeat, quodque aliter esse non possit. Hoc in sempiternam celeberrimi *D. Newtoni* Præsidis nostri gloriam reservatum est.

Hujus vestigiis insistens, Corollaria quædam exhibuit eximius Mathematicus *D. Abr. de Moivre* R. S. S. in *Philos. Transact.* N<sup>o</sup> 352 edita; Theoremata scil. parata, quibus determinantur Velocitates sive Momenta Motûs tam veri quam apparentis circa Solem, sicut etiam accessûs vel recessûs à Sole, in dato quovis dato-*rum* Orbium puncto. Deinde ut Theoriam systematis Planetici penitus excoleret, ope eorundem Theorema-*tum*, dictorum Momentorum Momenta perscrutatus est, ostenditque quibus in orbium punctis fiant *Maximæ* harum Velocitatum mutationes, idque Solutionibus facilitate & concinnitate præstantibus.

Sit *A B P* Orbis Planetæ Ellipticus, *A P* Axis Trans-*versus*, *C B* Semiaxis conjugatus, *S* Sol, *Q* Focus alter Ellipseos. Per *S* ducatur *S M* ipsi *C B* parallela: & erit punctum *M* in quo *Maxima* cum velocitate cre-  
scit



ascendentis *Maxima* fit, hoc modo obtinebitur. In AC capiatur  $CG = \frac{1}{2} AC$ , ac fiat angulus CSF  $30^{\circ}$  gr. duæque SF æqualis ponatur CE, ipsique GE fit GH æqualis. Dico, si distantia SO fiat æqualis ipsi PH, quod in puncto O proveniet *Maxima* mutatio motus angularis Planetæ in Orbe Elliptico ABOP gyrantis; eo scilicet in Orbis loco secundæ differentiæ æquationum centri Planetæ reperientur *Maximæ*. Est autem  $SO = \frac{1}{2} AC - \sqrt{\frac{1}{36} AC^2 + \frac{1}{3} SQ^2}$ . Quod si Orbis Parabolica fuerit, ut in Cometis, fiet SO ad SP ut 8 ad 7, angulusque OSP fiet  $41^{\circ}. 24' \frac{1}{2}$ , sive cujus Sinus fit ad Radium ut  $\frac{1}{4} \sqrt{7}$  ad 1.

Denique *Minimâ* cum Velocitate mutatur directio Tangentis Orbitæ in puncto R, si fiat SR æqualis duabus tertiis Axis majoris AB. Quod si Eccentricitas SC minor fuerit quam  $\frac{1}{3} PC$ , *Minimum* hoc non locum habet, sed decrefcit semper hæc Velocitas quacum revolvitur Tangens, usque in ipsum Aphelion; quemadmodum se res habet in omnium Planetarum motibus. Neque etiam in orbe Parabolico obtinet, ob Axem ejus in infinitum protensum.

Hæc omnia demonstrantur, juxta præcepta Doctrinæ de *Maximis & Minimis*, ex Theorematis prædictis in N° 352 exhibitis, quæ quidem hac occasione revifere Lectorem curiosum non pigebit.

## II. Apologia